Bear River Band of Rohnerville Rancheria

Nonpoint Source (NPS) Management Program Plan

September 2017

Submitted to:

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1. Overview

This Nonpoint Source Pollution Management Program Plan (Management Plan) describes how Bear River Band of the Rohnerville Rancheria (BRBRR) will use information contained in the NPS Assessment Report (Assessment Report) to address identified water quality impairments and threats. This Management Plan will elaborate on the specific activities to be undertaken to improve or maintain conditions documented in the Assessment Report over the next 4 years (FY2018-FY2021); an update to the Management Plan will be undertaken during the fifth year.

Bear River Band of Rohnerville Rancheria is located in northwestern Humboldt County, California, near the mouth of the Eel River, 1.5 miles southeast of the city of Loleta, and approximately a half mile north of the Eel River (Figure 1). The trust lands of the Rancheria cover approximately 173 acres and is part of a sub-basin watershed that drains approximately 200 acres (Strongs Creek - HUC 180101051102). The non-trust land holdings are approximately 7.61 acres and include two parcels contiguous to the trust land holdings in which a trust conveyance is underway, and two parcels located in the city of Fortuna. If and when the fee parcels are conveyed into trust status, they will be added to this Management Plan. Until that time, the fee lands of BRBRR are not included. The elevation of the Rancheria is an average of 315 feet above mean sea level, while the lowest parts are at approximately 100 feet above sea level.

The Assessment Report provided an understanding of the major sources of NPS pollution affecting BRBRR waters, which included development, urban runoff entering waters (particularly during storm events), and agricultural practices upslope of the Rancheria. Pollutants identified as potential sources of water quality impairment, which varied by waterbody, were found to be generated on BRBRR as well as off-site.

Wetlands present on BRBRR lands were designed as act as natural filters; an issue of primary concern is whether they will continue function adequately as a natural water filter for stormwater runoff. A NPS pollution management program is necessary to continue monitoring and addressing issues related to wetland function in order to maintain water quality on the Rancheria.

BRBRR surface waters were evaluated by waterbody to ensure an accurate understanding of how pollutants enter the land and water, and how water quality changes or improves as it flows through the Rancheria before entering the Eel River watershed. A summary of BRBRR surface waters, by waterbody and pollution type, are presented in Table 1.

Figure 1. Bear River Band of Rohnerville Rancheria location

Table 1. Bear River Band of Rohnerville Rancheria by waterbody, size and pollution type

Waterbody	Waterbody Type	Size or length	Pollution Types	Usage	Historical Water Quality
Eastern Creek	Class II stream	1,400 feet	Agricultural	None	Unavailable
Western Creek	Class II stream	1,800 feet	Agricultural	None	Unavailable
Middle Creek and Wetlands	Class II stream and wetland	1,900 feet and 4.6 acres	Urban runoff Construction	None	Unavailable
North Wetlands	Seasonal wetland	8.2 acres	Urban runoff Construction	None	Unavailable

Surface water drains to the Eel River via three unnamed seasonal creeks on the southwestern slopes of Tompkins Hill. The western intermittent creek runs only during the rainy season while the eastern perennial creek reportedly runs year-round. The portion of the Western Creek that flows across Bear River Band of Rohnerville Rancheria property is approximately 1,800 feet long and the Eastern Creek is 1,400 feet long. The Middle Creek flows directly through the Tish Non Village portion of the Rancheria; this creek is 1,900 feet long and flows through two wetland basins (1.8 acres and acre 1.5), before flowing through a third basin (1.3 acres) and entering the Eel River. In addition to the creeks, there are also wetland areas just south of the northern Rancheria property boundary, north of the developed portion of the Rancheria. This North Wetland is approximately 8 acres in size. A fourth unnamed creek flows just outside the northern boundary. The Tribe does not currently use the water from these streams; these resources provide habitat to the local wildlife, natural water quality treatment and groundwater recharge, and aesthetic values to the Tribe and the Rancheria's neighbors (Figure 2).

Pollution into the Western and Eastern Creeks are runoff from the upgradient pastureland where livestock graze. The Middle Creek receives runoff from the semi-suburban Tish Non Village development, as well as from construction taking place within the development, which also affects the North Wetland.

Impairments are pollutants that reduce the water quality below established water quality standards. NPS pollution categories and subcategories, and associated impairment levels are provided in Table 2, below.

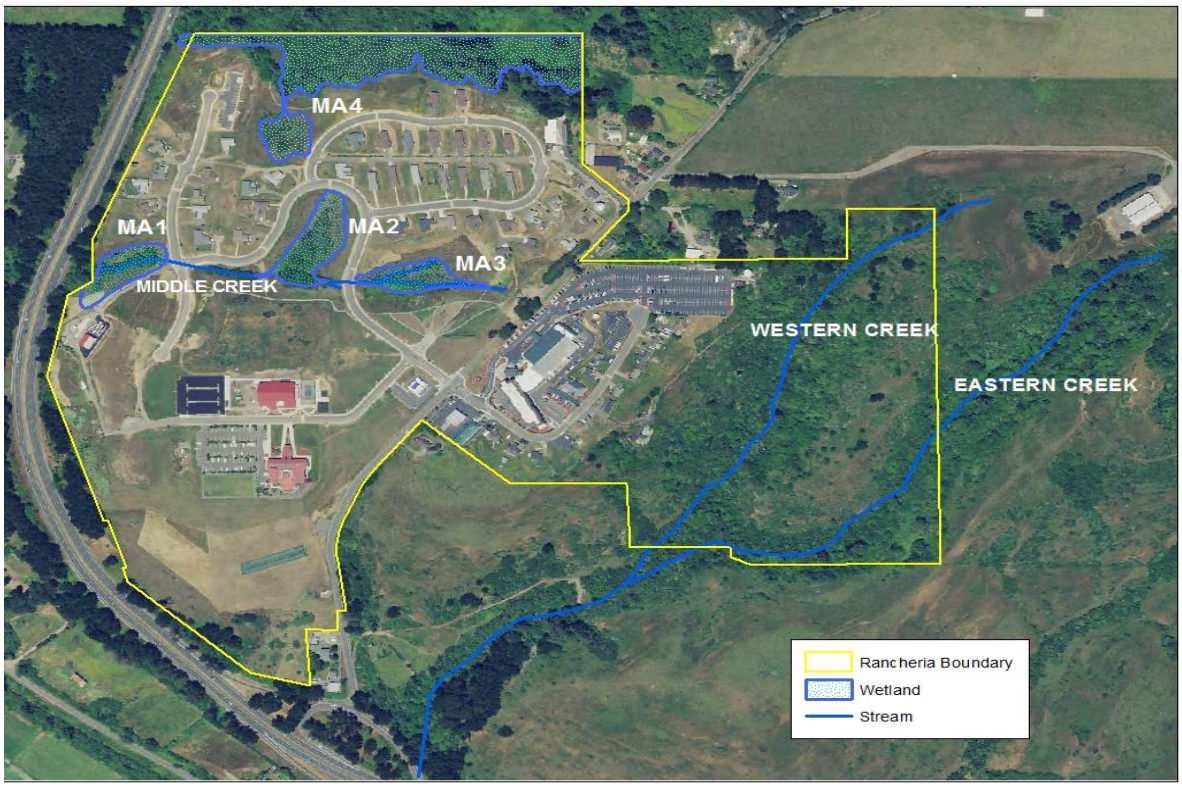

Figure 2. Location of surface waters on Bear River Band of Rohnerville Rancheria

Invasive Plant Species

Growth of invasive plant populations can deter the success of the native vegetation and potentially minimizing the beneficial functions of the wetland such as water filtration, deep perennial root growth to promote infiltration into the soil, and groundwater recharge. This is a major concern due to the reliance upon the wetland portions of the Rancheria to help reduce pollution on-site and in receiving waters. Invasive species arrive on the Rancheria from equipment, vehicles, foot traffic, animal and wind dispersal. Several species have been identified on the Rancheria and within the wetlands and upslope buffer areas, particularly in one of the wetlands (MA2) associated with the Middle Creek and Wetlands waterbody. In 2010, an Invasive Species Management Plan was approved, and mapping and inventory of these species was conducted from 2013 to 2015 under the CWA Section 319 program.

Table 2. Potential causes of nonpoint source pollution and associated impairment level

Category	Subcategory	Likely Pollutant(s)	Impairment Level*
Construction	Clearing / grubbing operations, soil import operations, excavation, heavy equipment use, framing and concrete construction, landscaping	sediment, fertilizers, pesticides	2
	Vehicle use	oil, grease, coolants, petroleum	3
	Concrete operations	cement materials	4
	Construction	joint materials, paint, solvents and thinners, wood products, metals	3
Urban runoff	Lawn and gardens maintenance,	fertilizers, pesticides	3
	Driveways and roads, rooftops	increased water volume and velocity	4
	Automobile use	oil, grease, coolants, petroleum	3
	Septic system and pets	fecal matter	3
	Exhaust, building weathering, fossil fuels combustion, atmospheric deposition	metals	3
	Brake pad wear	Copper	4
	Atmospheric deposition, diesel fuel	lead	3
	Automobile tires, paints, weathering of galvanized gutters and downspouts	Zinc	3
	Parking lots, streets, landscaping	sediment	3
	Parking lots, streets, rooftops	high runoff volumes and velocities	3
Agricultural	Cattle grazing, fertilizer use	fecal coliforms, nutrients, sediment	2

*Scale of Impairments

Level 1. Confirmed impairment currently exists.

Level 2. Possible impairment: not yet confirmed by monitoring data.

Level 3. NPS pollution occurring with no current impairment to water bodies

Level 4. No know NPS pollution occurring or impairment to water bodies at this time

Certification of Tribal Authority

The Rancheria was created in 1910 by federal law. Pursuant to the California Rancheria Act of 1958, Pub. L. 85-671 Stat. 69, as amended by the Act of August 11, 1967, 78 Stat. 390, the United States terminated its federal-tribal relationship with the Tribe as part of the federal termination era. During this period, the Tribe lost a substantial amount of its lands. In Hardwick et al v. United States, No. C-79-1710-SW (D. Calif. 1985) (Stipulation for Entry of Judgment), however, the federal termination actions were held to be invalid and the federal court restored all lands within the present-day Rancheria. These Rancheria lands are considered Indian Country with the meaning of the federal Indian Country statute 18 U.S.C. 1151. The federal actions did not alter the status of the Rancheria as a continuing homeland for the Tribe. The Rancheria forms a geographic area for the exercise of Tribal jurisdiction, supports a residing population, and it is the basis of the Tribal economy.

The Bear River Band is a federally recognized Indian Tribe organized under a Constitution, which was approved by the Tribal membership and Resolution of the Tribal Council, the governing body of the Tribe (Resolution No. 94-28 of October 05, 1994). The tribe currently consists of 608 members with 150 living on the Rancheria. The Tribe, from time immemorial, has occupied and used the lands on and near the present-day Rancheria.

Further, EPA approval of 'Treatment in a similar manner as a State' for the Bear River Band of Rohnerville Rancheria under the CWA 319 program was initially approved January 28, 2003, and expanded to apply to additional trust lands August 15, 2013.

2. Introduction

The Management Plan will be implemented on the trust lands of Bear River Band of Rohnerville Rancheria, a sub-basin of the Eel River watershed. The Eel River watershed is the third largest in California, and an important river for salmon, Pacific lamprey and other aquatic species. It also supplies water to towns and agricultural users in its valley. By addressing water quality issues within BRBRR, water quality and habitat will improve downstream.

The primary goal of the NPS Pollution Management Program Plan is to prevent and control pollution from nonpoint sources and to protect or improve water quality on the Rancheria. This will be accomplished through an emphasis on reducing pollutants and sediment entering waters, and on prevention education in order to protect and preserve Tribal waters.

The primary objectives of this Management Plan are to ensure water quality maintenance by providing realistic and attainable goals, or milestones, upon which progress can be measured, and the continuing education and promotion of water quality protection practices for Bear River Band of Rohnerville Rancheria members.

Construction, urban runoff, and agriculture were all identified as NPS pollution threats to water quality in the Assessment Report (In review, 2017), in addition to invasive plant species, particularly in the wetlands associated with Middle Creek that bisect Tish Non Village.

Existing data indicates that BRBRR exists in a relatively healthy sub-basin of the Eel watershed. Surface water sources appear to be fairly pristine with the exception of agricultural runoff, erosion, and an increase in impervious surfaces with more recent development. Removal and continued monitoring and maintenance of invasive plant species will also be an important component of water quality maintenance. It is important to remove invasive species to avoid becoming a source and vector for seeds, and preventing further spread into the Eel River valley and habitats downstream.

Recently, BRBRR commissioned a Subwatershed based Plan (GHD 2016) based on the EPA recommendation to adopt such plans, which use science to protect and restore watersheds through its Clean Water Act (CWA) Section 319 funding program. This plan provides a roadmap for fulfilling goals and objectives. It concluded that, in general, it appears NPS runoff had a mild but measurable effect on water quality.

The subwatersheds defined in the Subwatershed Plan were drawn at a finer scale, but coincide with the waterbodies defined in this document and the NPS Assessment Report. The subwatershed divisions were lumped, reducing the number from a total of five to 1) Western Creek, 2) Middle Creek and Wetlands, and 3) North Wetlands.

BRBRR Subwatersheds Monitored for Water Quality

The purpose for evaluating the surface waters of Bear River Band of Rohnerville Rancheria by waterbody (subwatershed) is to determine if the wetlands are functioning as a filtration system for surface water runoff and associated contaminants (pollutants) as water moves through the Rancheria and ultimately deposits into the Eel River watershed.

Surface waters are monitored through series of wetland and stormwater sampling sites (Figure 3) that transect the Rancheria, and capture runoff readings from impermeable surfaces and urban areas before and after entering wetlands. The stormwater sampling helps determine the urban runoff impacts and contaminants being delivered to the Eel River; wetlands sampling determines the potential impacts of Tribal activities, which include urban runoff, construction, and wastewater disposal.

At sites where contaminant levels are above acceptable limits, appropriate best management practices (BMPs) will be implemented in the area to eliminate or contain the source of pollution; these sites will then be evaluated each year for sign of improvement. For example, fecal coliform is a pollutant present at all wetland sampling locations, particularly Western Creek, where it can greatly affect the pH (making it more acidic). The NPS pollution control programs in place for urban runoff may already be having a positive effect, but will need to be determined by more frequent, future sampling.

Figure 3. Wetland and stormwater sampling locations and wells on BRBRR

Western Creek

This is the west fork of an ephemeral stream located on the east portion of BRBRR. The wetland sampling site, located upstream of the stormwater sampling, is influenced primarily by ranching operations upstream. Coliform and nitrates associated with cattle operations continue to degrade the quality of this drainage. Further, cattle can increase sediment and temperature within a drainage by the removal of riparian vegetation. The acidic pH levels may also reflect influences of increased organic matter associated with agricultural runoff.

Middle Creek and Wetlands

Sampling of Tish Non Village waters, as they flow east to west, include 5 wetland and 2 stormwater sampling locations. Stormwater readings at both locations indicate a consistent presence of diesel, motor oil, and automobile associated contaminants, but downstream wetland readings recently returned high dissolved oxygen levels, an indicator of a healthy ecosystem. However, coliform and turbidity levels were elevated at the wetland sites.

Invasive Species

The presence of invasive plant species in BRBRR wetlands could have a profound effect on the wetlands ability to act as a natural filter for NPS pollution, particularly concerning for Tish Non Village waters. In 2013, Hoopa Tribal Civilian Community Corps (TCCC) and AmeriCorps removed approximately 20 cubic yards of invasive vegetation, and again in 2015, Hoopa TCCC removed 60 pounds of Pampas Grass from the Rancheria. The Tribe will receive EPA Section 319 funding for FY2018 to address invasive species management in the wetlands, and to meet Tribal goals of mapping, removing, and monitoring invasive species populations, as well as scheduling removal with the help of the Hoopa TCCC. In addition, funds will allow for follow up monitoring, maintenance and outreach by the ENR Department staff. Work will begin upon approval of the present NPS pollution documents.

North Wetlands

This area of BRBRR receives runoff from Tish Non Village, and from some additional and proposed housing northwest of the Village; there are no wetland sampling sites in this area. Stormwater runoff sampling has been more infrequent at these locations and construction was ongoing during the sampling, resulting in contamination that will likely decrease during future sampling events. Although there are no downstream effects being measured, concern remains for the receiving waters of the Eel River, a major anadromous fish-bearing river.

Sampling Summary

In general, the number and location of stormwater and wetland sampling sites appear adequate for the purposes of tracking contaminants entering and exiting the Rancheria, and reporting on water quality. Increasing storm event sampling opportunities will greatly enhance the data set going forward, providing a solid baseline from which sound decisions can be based.

The drought of the past several years has added to sampling difficulties, and it is anticipated that wet winters will once again be more common. It will be important to track and manage upgradient issues associated with agricultural activities as more wet conditions prevail, increasing the likelihood of increased contaminants, particularly coliform and turbidity.

3. Summary of BRBRR Management Program

The legal authority for the administration of the Tribe's proposed NPS Pollution Management Plan Program is based on Bear River Band of Rohnerville Rancheria being a federally recognized Indian Tribe organized under a Constitution, which was approved by the Tribal membership and Resolution of the Tribal Council, the governing body of the Tribe (Resolution No. 94-28 of October 05, 1994). The Rancheria was created in 1910 by federal law; these lands are considered Indian Country with the meaning of the federal Indian Country statute 18 U.S.C. 1151. The Rancheria forms a geographic area for the exercise of Tribal jurisdiction, supports a residing population, and it is the basis of the Tribal economy.

Bear River Band of Rohnerville Rancheria manages the NPS pollution program through its Environmental Natural Resources (ENR) Department. This department has three fulltime staff and a Tribal ENR Director. Implementation, and coordination of implementation, of BMPs on the Rancheria will be the responsibility of the ENR Department staff. Selected BMPs that are a part of contractor project plans are to be implemented by the contracting party; ENR staff will be available for coordinating the implementation of BMPs on Tribal lands. It is anticipated that current staffing will be adequate for maintaining the monitoring program and implementing the NPS pollution management plan.

Identification and selection of BMPs that will achieve BRBRR goals and objectives were first selected by the ENR Department, then further refined by the Director and presented to the Tribal Council. In addition to the above approach, the Tribe receives recommendations for BMPs through various assessments and reports completed for the Rancheria. Also, BMPs are often written into construction plans and proposals by consultants and contractors, as required by regulatory agencies. They are also developed by tribal employees unique to their department and are drawn from research, trainings, collaboration, and workshops.

Tribal members have the opportunity to learn about department activities in the tribal newsletter and council meeting minutes. They also have the ability to attend council meetings, submit agenda items and provide comments.

Funding plays a crucial role in BMP implementation. The Tribe's ENR Department is primarily grant funded and resources are limited. Also, Tribal BMP priorities don't always align with available funding. CWA Section 106 funds are currently used for monitoring and reporting of surface water quality on the Rancheria, as well as conducting public outreach. CWA Section 319 funds are used for planning and implementation of NPS pollution control projects and public outreach. Continued reliance on outside sources of funding for NPS program implementation is expected.

The NPS Management Plan is a subwatershed based plan (Figure 2). The Subwatershed based Plan (2016) developed by GHD, globally recognized as design leaders in engineering, environmental and construction services, in conjunction with the Tribe's ENR Department, provides a roadmap for BRBRR to fulfill its goals and objectives to improve and maintain water quality.

The stated goal of the Subwatershed based Plan (2016) is to improve water quality to support a healthy tribal community and habitat of Bear River Rancheria. In general, authors of this document found that development activities within the Rancheria could contribute nonpoint source pollution that may increase sediment, temperature, and aluminum to downstream waters (Eel River), albeit in relatively small amounts. The lower Eel river is already impaired by these same pollutants, and implementation of the subwatershed plan would exercise good stewardship as well as improve water quality and habitat for aquatic species.

The subwatershed plan goes on to state that with development activities comes increased storm runoff, due to the increase in impervious surfaces, and this includes an increase in fecal coliform, the Tribes' greatest concern with respect to public health and water quality. These findings greatly informed this Management Plan by providing focus for the prioritization of objectives.

The Stormwater Landscaping Master Plan (Stormwater Plan), part of the subwatershed based plan, describes several potential types of Low Impact Development (LID) projects intended to reduce NPS pollution, particularly coliform. As previously mentioned, the Stormwater Plan subwatershed divisions were lumped, reducing the number to 3 from a total of 5 subwatersheds, to coincide with BRBRR Assessment Report and this documents' waterbody designations.

LID projects are determined in part by the amount of impervious cover in each subwatershed; the EPA classifies (sub)watersheds as sensitive, impacted, and non-supporting based upon the levels of impervious cover (10%, 10>25%, >75%). Western Creek has a ranking of sensitive, Middle Creek and Wetlands received a ranking of non-supporting, and the North Wetlands are ranked as impacted.

Table 3, below, summarizes the management of the three primary categories of NPS pollution, using a combination of BMPs and LID techniques.

Table 3. Summary of plan for management of NPS pollution sources

NPS	Impacts/Pollutants	Management measures
Construction	• Sediment and chemical transport to streams from construction activities during storm runoff • Erosion due to exposed soils (earthmoving, new landscaping) during high rainfall events • On-site refueling of heavy equipment	• Straw bale barriers slow runoff and form settling ponds for filtering low to moderate storm flows • Filter fabrics protect soil and seeds while allowing vegetation to grow • Silt fences using filter fabric retain sediment on construction site • Designate an area for on-site refueling of work vehicles with above preventative measures in place
Urban Runoff	• Non-porous landscapes such as parking lots, roads, buildings, roofs accumulate then run off in large amounts; reduces amount of open ground to absorb rain water	• Underground detention basins collect runoff at 100yr event flow rates and release at normal rates to storm drains • Hybrid parking lots combine impervious surfaces for driving

	• Run off in large amounts increases potential for sediment transport from steep terrain and highly erosive soils • Construction practices contribute chemicals, sediment from machinery, grading activities • Animal wastes source of pathogenic bacteria • Household chemicals from on and off-site sources such as motor oil, antifreeze, paint, fertilizers	and permeable surfaces for parking stalls • Bioswales detain and treat parking lot runoff • Erosion control and slope stabilization using bioengineered options including planting vegetation • Education programs and Tribal newsletter articles on stormwater pollution; and fertilizers and pesticides; watershed stewardship • Foundation planting at base of eaves to reduce sediment runoff • Riparian buffer or filter strips • Residential rainwater harvesting
Agricultural	• Animal wastes source of pathogenic bacteria and coliform • Grazing source of nutrients in form of nitrates, decreasing available oxygen for water dwelling organisms • Grazing increases sediment from unstable slopes and	• Riparian buffer or filter strips • Outreach and cooperation with upslope landowners with cattle operations • Manure storage • Manure utilization • Pasture management

	stream bank erosion; sediment covers spawning gravel for fish, impedes insect development • Cattle consume or trample large quantities of vegetation, reducing plants and roots that hold soil	

Local and Private Experts Supporting Implementation

Development of LID projects will occur alongside development projects such as the recreation center, baseball fields, and RV park, to name a few. In some cases, LID features will be required with building permits. Technical assistance will be provided in the form of engineers and designers from the firms developing plans for these projects, and the costs for these features will be included in the fundraising for the projects themselves.

Education and outreach programs developed by ENR Department staff will help implement those LID projects best suited to address urban runoff at the residential level. For example, the building of rain gardens or installation of rain barrels.

Hoopa Tribal Civilian Community Corps and AmeriCorps were instrumental in initial invasive plant species removal efforts; it is anticipated that the Hoopa TCCC will continue contributing to these removal efforts in the future.

4. Contents of the Management Program Plan

The overall goal of the management program is to improve and maintain water quality to support a healthy tribal community and habitat on Bear River Band of Rohnerville Rancheria. By establishing water quality standards, BRBRR can be ensured that all water resources on the Rancheria will meet these standards for continued water quality and improvement. The NPS Management Plan, in conjunction with the subwatershed basin plan (GHD 2016), will contribute to this objective. General program goals are in Table 4, below.

Table 4. General NPS pollution management program goals by Fiscal Year

NPS Management Program Goals	Frequency or Year
Submit NPS Assessment Report to EPA	2018
Submit NPS Management Program Plan to EPA	2018

Propose NPS Management Plan to Tribal Council	2018
Update Management Plan as needed and review with ENR Department staff and Tribal Council	Annually
Submit annual status reports to EPA	Annually
Convene ENR Department staff to review projects and the overall program and set priorities for next fiscal year	Annually
Incorporate priorities into work plan for NPS program and submit to funding agencies (BRBRR, EPA)	2019 and beyond
Review progress (annual monitoring reports); set new goals and objectives as needed to Management Plan	2022

Pollutants specific to each waterbody (Table 5) can be addressed through proposed BMPs and LID techniques, as well as those currently in use. Impairment level, or priorities, are based on surface water monitoring results (NPS Assessment Report, In review). Future priorities may be identified and addressed as they are confirmed by future monitoring data.

Table 5. Specific pollutants and impairments by waterbody

Waterbody	**Pollutant / Issue**	**Level of Impairment / Priority**
Western Creek	Fecal coliforms; nutrients; sediment; pesticides and fertilizers; lawn and garden maintenance; driveway, road and parking lot runoff; exhaust	Low
Middle Creek and Wetlands	Fecal coliforms; fuels; metals; suspended solids; sediment; pesticides and fertilizers; paints, solvents and thinners; invasive plant species	Moderate
North Wetlands	Fuels; metals; suspended solids; nutrients; coliform	Low

Objectives provide the measures for evaluating steps towards achieving the project goal. These objectives can be determined by current and proposed BMPs and LID projects. Below are the NPS pollution categories by waterbody, with goals and objectives for 4 years (FY2018-FY2021) of the 5-year (FY2022) cycle of the program plan.

WESTERN CREEK

Evaluation of the sampling data revealed continued elevated levels of contaminants associated with cattle operations. Measures will be taken to control coliform and turbidity on the Rancheria through monitoring, maintenance and riparian enhancement (see Agricultural BMPs).

Properly functioning riparian areas and natural wetlands can significantly reduce nonpoint source pollution. Riparian buffers are an area of trees and shrubs located adjacent to streams, lakes, ponds, and wetlands. This vegetation strip enhances certain ecological functions. For example, the roots of plants stabilize soil and the plant foliage block wind or provide shade, providing cleaner water, enhancing wildlife populations, enhancing aesthetics and creating sustainable landscapes.

While it is not possible to completely prevent all erosion, it can be reduced to manageable rates through vegetated filter strips, including riparian areas, which can be effective at routing field runoff by filtering, trapping and settling soil particles.

Monitoring data will inform future steps to be taken should cattle-related contaminants continue being an issue. If necessary, implementation of the current BMPs in place for manure and pasture management may be considered. Although outreach to adjacent landowners could prove beneficial it may not be well-received. The Stormwater Plan has an LID project that would place a riparian buffer or filter strip between casino facilities and the Western Creek drainage, providing additional attenuation and biofiltration, and habitat benefits.

A schedule of goals for all NPS pollution categories related to this waterbody are provided in Table 6, below.

AGRICULTURAL

GOAL: To eliminate coliforms and sediment from entering the drainage from on and off-Rancheria sources.

SHORT-TERM OBJECTIVE: To conduct monitoring and maintenance of boundary fencing to ensure cattle are excluded from Rancheria lands.

LONG-TERM OBJECTIVE: To enhance and monitor Western Creek riparian area.

URBAN RUNOFF

GOAL: To drastically reduce or eliminate pollutants entering the drainage, particularly from impervious surfaces.

SHORT-TERM OBJECTIVE: To install a riparian buffer or buffer strip between the casino and creek drainage, between Bear River Drive and the former sewage treatment plant.

LONG-TERM OBJECTIVE: To have this buffer strip dramatically reduce pollutants related to urban runoff.

Table 6. Schedule of goals for Western Creek

NPS Pollution Goals	Year 1 FY2018	Year 2 FY2019	Year 3 FY2020	Year 4 FY2021
Agricultural				
Develop an approach to survey, monitor and maintain Rancheria boundary fencing	X			
Conduct surveying and maintenance of Rancheria boundary fencing		X		
Develop an approach to enhancing (planting) Western Creek riparian area		X		
Procure and plant riparian area with native trees and plants, possible relocated from other areas of the Rancheria		X	X	
Develop monitoring schedule for riparian area plantings			X	
Increase monitoring for NPS pollution from off-Rancheria sources			X	X
Increase stormwater sampling events and wetlands monitoring for NPS improvements		X		X
Urban runoff				
Install riparian buffer		X		
Develop an education program on stormwater runoff pollution sources for BRBRR members		X		
Implement stormwater runoff education program at school and community events			X	X

MIDDLE CREEK AND WETLANDS

Urban runoff is the primary source of NPS pollution along with some construction related contamination. Steps will be taken towards the implementation of current BMPs in place (see Urban runoff and Construction BMPs). The Stormwater Plan has 7 potential LID projects for this waterbody. This area has ongoing construction projects (recreation center, RV park) and planned future projects (family fun center, health clinic, indoor pool, native garden, dog park, ballfields, ceremonial space, storage warehouses). Normally about 90 percent of the water that falls on pavement is converted to surface runoff. Implementing a combination of detention basins, bioswales, and buffer strips will go a long way towards reducing runoff related NPS pollution.

Invasive Plant Species

An invasive plant species inventory was updated with a list of confirmed sighting of identified species on BRBRR. The Tribe intends to use the EPA Section 319 funding to quantify, map, and remove invasive plant species using methods outlined in the Invasive Species Management Plan (BRBRR 2010).

A schedule of goals for all NPS pollution categories related to this waterbody are provided in Table 7, below.

CONSTRUCTION

GOAL: To drastically reduce or eliminate construction related pollutants (particularly metals) and sediment from entering the Eel River.

SHORT-TERM OBJECTIVE: To have a Stormwater Pollution Prevention Plan (SWPPP) prepared for all construction projects that detail project-specific BMPs to implement.

LONG-TERM OBJECTIVE: To incorporate LID features into all current and future construction projects.

URBAN RUNOFF

GOAL: To drastically reduce urban runoff contamination by educating BRBRR residents on this mostly unseen but harmful source of NPS pollutants.

SHORT-TERM OBJECTIVE: To plant buffer strips at storm drain out falls that enter wetlands.

LONG-TERM OBJECTIVE: To ensure biotreatments are in place at all points of entry of storm runoff, and to have demonstration projects in place at community buildings to encourage Tribal members to implement at their residence.

INVASIVE SPECIES

GOAL: To monitor and remove invasive plant species

SHORT-TERM OBJECTIVE: To quantify and map all priority invasive plant species

LONG-TERM OBJECTIVE: To maintain database of all invasive species and schedule removal

Table 7. Schedule of goals for Middle Creek and Wetlands

NPS Pollution Goals	Year 1 FY2018	Year 2 FY2019	Year 3 FY2020	Year 4 FY2021
Construction				
Reduce sediment load by implementing BMPs that physically obstruct sediment (silt fence, filter fabric) at all construction sites	X	X		
Prepare SWPPP for all construction projects	X	X	X	X
Reduce hydrocarbon load by developing machinery fueling, cleaning, and parking protocols		X		
Strategic placement of LID features downslope of planned projects to intercept contaminants before washing downstream (rain gardens, bioswales, filter strips, buffer vegetation)			X	X

Consider demonstration green walls or green roofs at future warehouses (budget dependent)				X
Urban runoff				
Plant riparian buffer or filter strips at storm drain outfalls (SS2, SS3)			X	
Construct retention pond at storm drain outfall (budget dependent)				X
Create bioswale or infiltration strip to biotreat casino parking lot runoff			X	
Reduce household contribution by implementing stormwater runoff education program at schools, community event; publish articles in Tribal newsletter		X		X
Encourage residents to plant rain gardens, install rain barrels, and landscape under eaves by having demonstration projects at new construction projects (recreation center, family fun center)		X	X	
Pervious paving stones for future parking lots or retrofitting current parking lots to reduce runoff (budget dependent)				X
Invasive Species				
Remove priority invasive species	X	X	X	X
Quantify and map species, particularly in wetlands	X			
Identify priority species and control areas	X			
Develop and maintain an informational database	X	X	X	X
Establish a monitoring system for priority species		X		

NORTH WETLAND

Pollution sources in this portion of the Rancheria are primarily construction related metals and nutrients related to urban runoff, potentially sourced from raw sewage and fertilizers. Implementation of the educational BMPs in place related to stormwater pollution and fertilizer use would be most beneficial, as well as utilizing all construction BMPs in place during construction activities (see Construction and Urban runoff BMPs). The Stormwater Plan has 3 potential LID projects to help mitigate the effects of construction and urban runoff.

There is currently a detention basin in the area of an existing parking lot for the future proposed multifamily housing and single-family residences, and one housing lot has been made available for enlarging or creating a new stormwater pond. Ideally this is in place prior to construction start.

A schedule of goals for all NPS pollution categories and invasive species related to this waterbody are provided in Table 8, below.

CONSTRUCTION

GOAL: To drastically reduce or eliminate construction related pollutants (particularly metals) and sediment from entering the Eel River.

SHORT-TERM OBJECTIVE: To have a SWPPP prepared for all construction projects that detail project-specific BMPs to implement.

LONG-TERM OBJECTIVE: To continue, and improve upon, the implementation of LID techniques into ongoing construction projects.

URBAN RUNOFF

GOAL: To drastically reduce urban runoff contamination by educating BRBRR residents on this mostly unseen but harmful source of NPS pollutants.

SHORT-TERM OBJECTIVE: To develop a list of issues to address in short, informational articles for Tribal newsletter related to stormwater runoff and fertilizer/pesticide alternatives and education.

LONG-TERM OBJECTIVE: To provide all BRBRR residents an opportunity to be informed on how their participation in addressing urban runoff pollution issues can greatly enhance water quality for everyone in the Eel River watershed.

Table 8. Schedule of goals for North Wetland

NPS Pollution Goals	Year 1 FY2018	Year 2 FY2019	Year 3 FY2020	Year 4 FY2021
Construction				
Reduce sediment load by implementing BMPs that physically obstruct sediment (silt fence, filter fabric) or allow to settle out (straw bale barrier, detention basins)	X	X	X	X
Prepare SWPPP for all construction projects	X	X	X	X
Reduce hydrocarbon load by developing machinery fueling, cleaning, and parking protocols		X		
Urban runoff				
Stormwater runoff education through informational handouts, Tribal newsletter articles, community event programs	X	X	X	X
Fertilizer/Pesticide education through Tribal newsletter articles		X	X	X
Encourage residents to incorporate rain barrels and foundation plantings into landscaping	X	X	X	X
Enlarge existing or create new stormwater pond on lot		X		

Evaluating Success of NPS Management Program Plan

The above tables, included for each BRBRR waterbody (Western Creek, Middle Creek and Wetlands, North Wetland), address NPS pollution sources (and invasive species) by category (Agricultural, Construction, Urban runoff). Under each category are goals, or milestones, to be met each year.

Although these goals are generally attainable, budget constraints may restrict the ability of ENR Department staff to achieve those laid out for each fiscal year. We consider 75 percent completion of goals per fiscal year as a reasonable measure of success. Goals not met will be carried over to the following year. Goals still not met by Year 4 will be reevaluated during Management Plan updates in Year 5 (FY2022).

Best Management Practices and Programs to Support Implementation Activities

Agricultural Best Management Practices

The following BMPs are easy, low cost methods to reduce NPS pollution effects.

- **Riparian Buffers** are vegetated buffers that provide an additional barrier of protection by capturing potential pollutants that might otherwise move into surface waters

- **Erosion and Sediment Control** can be achieved with the use of vegetated buffer strips, which reduce the mass of sediment reaching a waterbody, while protecting water quality and habitat by routing field runoff through buffer strips to trap and settle sediment.

- **Manure Storage** includes locating barnyards, stockyards, feeding and watering areas well away from surface waters to prevent runoff from reaching them, and collect manure regularly during periods of confinement. Cover stored manure to keep rainwater from seeping through it and divert roof runoff from the storage area with gutters and downspouts.

- **Manure Utilization** involves testing soil to determine how much manure to apply. Apply manure evenly as a fertilizer to pastures, fields and gardens, ensuring that you apply only as much as your crop or pasture can use. Till manure evenly into soil whenever possible to maximize nutrient use and minimize runoff. Do not apply manure when soils are frozen or saturated, or when plants will not use the nutrients. Leave an adequate buffer strip between manure application sites and surface waters.
- **Pasture Management** includes maintaining pasture fencing to keep animals away from surface waters and swampy areas. Vegetated buffer strips can provide filtration and absorption of pollutants, and are a very important part of proper animal management. Drag pastures to spread droppings and promote uniform grazing, and restrict grazing when plants are dormant. If animals must be pastured during the winter, reduce use to a small winter confinement area.

Construction Best Management Practices

- **Straw bale barriers** are a row of straw bales that slow runoff flow and creates a pond behind the barrier where sediment can settle out. Straw bale barriers are most effective for filtering low to moderate storm flows, where structural strength is not required. Barriers should be bound, entrenched, and securely anchored to prevent deterioration.
- **Sediment/Detention basins** are ponds created for removal of sediment and pollutants from construction runoff. Sediment basins primarily serve to retain or detain runoff to allow excessive sediment to settle out during construction. Sediment basins can be converted into permanent detention ponds or wetlands after construction. Detention basins temporarily store runoff from a site and release it at a controlled rate to minimize downstream flooding. Effectiveness is greatest for suspended sediments (80 percent or more removal) and related pollutants such as heavy metals.
- **Filter fabrics** are engineering fabrics designed to retain sediment particles larger than a certain size and allow water to pass through. Filter fabrics can be used in silt fences (see below) or erosion control mats. Erosion control mats protect soil and seed from erosion and can be designed to allow vegetation to grow through the material.
- **Silt fences** are vertical fences of filter fabric that are stretched across and attached to support poles. The fabric retains sediment on the construction site and allows relatively sediment-free water to pass through. Silt fences are placed to protect streams and surrounding property from sediment-laden runoff.
- **Seeding with grass and overlaying with mulch or mats** is done to stabilize cleared or freshly seeded areas. Types of mulches include organic materials, straw, wood chips, bark or other wood fibers, or decomposed granite and gravel. Mats are made of natural or synthetic material and are used to temporarily or permanently stabilize soil.
- **Preserve existing vegetation** as much as is feasible. Clear only those areas essential for completing construction activities and other areas should remain undisturbed. Additionally, the proposed limits of land disturbance should be physically marked off to ensure that only the required land area is cleared. Avoid disturbing vegetation on steep slopes or other critical areas.

Urban Runoff Best Management Practices

- **Underground Detention Basins** are designed to provide temporary storage of stormwater runoff. Like detention basins, underground detention systems are designed to empty out between runoff events so that storage capacity is available for subsequent runoff events.
- **Stormwater Pollution Education** of homeowners and contractors who work on Rancheria lands could help identify common sources of pollution, and identify easy ways to reduce or prevent pollution or introduce alternatives to common polluting practices. This educational outreach will be done by producing informational pamphlets and providing informational

articles in the Tribal Newsletters. Additional education opportunities are provided during the Natural Resource's annual Earth Day event. Pollution caused by residential and construction activities are often unnoticed because of its very nature of not originating from one point or of not delivering large amounts of pollution at any one time.

- **Fertilizer/Pesticide Education Program** will educate community members ways to reduce or eliminate use of fertilizers and pesticides, and present alternatives such as organic pest control, companion plantings, composting and compost use, and non-chemical lawn maintenance. Fertilizer and pesticide use are examples of common practices that can have detrimental effects on water quality. These compounds can add poisonous chemicals and nutrients to water resources affecting wildlife and plant life by contaminating or eradicating habitat and food sources.
- **Erosion Control and Slope Stabilization** at problem sites will include appropriate erosion control and slope stabilization measures based on site-specific conditions and established guidelines. Bioengineered techniques use vegetation in combination with other techniques to stabilize slopes and streambanks. Advantages of bioengineered solutions include low cost and lower long-term maintenance cost than traditional methods, low maintenance of live plants after they are established, improved strength over time as root systems develop and increase structural stability, and environmental benefits such as wildlife habitat, water quality improvement and aesthetics.
- **Foundation planting** (landscaping) around the base of the eaves can reduce the physical impact of water on the soil and provide a subsurface matrix of roots that encourage infiltration.
- **Hybrid parking lots** combine impervious and permeable surfaces. The impervious aisles are designed to carry moving and turning vehicle traffic, while the permeable stalls accommodate stationary or very slow-moving cars.

Watershed-based Activities

The following 4 goals were determined to be the most important to address in the subwatershed based plan (GHD 2016) developed for Bear River Band of Rohnerville Rancheria. These goals are 1) to reduce exceedances of fecal coliform by 15 percent, 2) to implement LID techniques to reduce nonpoint sources of pollution by 10 percent, 3) to foster stewardship by educating and engaging residents and tribal youth in implementing LID projects, and 4) to incorporate nonpoint source pollution strategies into new development projects.

It is anticipated the NPS Management Program Plan will meet these goals for all existing waterbodies on BRBRR during the period proposed within this document by implementing BMPs and LID projects outlined in Table 3, above.

Schedule of BMP Implementation

As previously mentioned, BMPs will be required, if not from regulating agencies, from Bear River Band of Rohnerville Rancheria, for all current and future construction occurring on the Rancheria.

Implementation of BMPs will follow the schedules presented in each waterbody section above (see Tables 6-8), and will be the responsibility of ENR Department staff to ensure proper placement and maintenance of structural BMPs; and for developing and procuring the necessary materials for, and maintaining the schedule of, nonstructural BMPs.

Tribal Statement of Public Notification

A public comment period for the Bear River Band of the Rohnerville Rancheria Nonpoint Source Management Plan took place between August 16 and September 16, 2017. Notices were posted throughout the Tish Non Community Center as well as on the Tribe's website. Hard copies of the document were available at the front desk of the community center and at the Environmental and Natural Resources Office. Tribal members also had the opportunity to submit written comments to the ENR Department staff via mail or email, or to bring comments to the quarterly General Council Meetings and submit agenda items for weekly Tribal Council meetings.

No public comments were received on the NPS Management Program Plan, therefore, no changes were made to the NPS Assessment Report or Management Plan.

5. References

Bear River Band of Rohnerville Rancheria Invasive Species Management Plan, 2010

Bear River Band of Rohnerville Rancheria Subwatershed based Plan, GHD 2016

6. Acronyms and Abbreviations List

BRBRR	Bear River Band of the Rohnerville Rancheria
BMPs	Best Management Practices
CWA	Clean Water Act
EPA	Environmental Protection Agency
ENR	Environmental Natural Resources (Department)
HUC	Hydrologic Unit Code
LID	Low Impact Development
NPS	Nonpoint source (pollution)
SWPPP	Stormwater Pollution Prevention Plan